



1600

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/825,769A

DATE: 05/09/2003
TIME: 12:39:25

Input Set : A:\38777054.app
Output Set: N:\CRF4\05092003\I825769A.raw

RECEIVED
MAY 15 2003
TECH CENTER 1600/2900

3 <110> APPLICANT: BLAKE, MILAN S.
4 BOGDAN JR., JOHN A.
5 NAZARIO-LARRIEU, JAVIER
7 <120> TITLE OF INVENTION: METHOD FOR THE PRODUCTION OF BACTERIAL TOXINS
9 <130> FILE REFERENCE: 38777-0054
11 <140> CURRENT APPLICATION NUMBER: 09/825,769A
12 <141> CURRENT FILING DATE: 2001-04-04
14 <150> PRIOR APPLICATION NUMBER: 60/194,478
15 <151> PRIOR FILING DATE: 2000-04-04
17 <160> NUMBER OF SEQ ID NOS: 12
19 <170> SOFTWARE: PatentIn Ver. 2.1
21 <210> SEQ ID NO: 1
22 <211> LENGTH: 10
23 <212> TYPE: DNA
24 <213> ORGANISM: Artificial Sequence
26 <220> FEATURE:
27 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
28 oligonucleotide
30 <400> SEQUENCE: 1
31 gattgctgat 10
34 <210> SEQ ID NO: 2
35 <211> LENGTH: 10
36 <212> TYPE: DNA
37 <213> ORGANISM: Artificial Sequence
39 <220> FEATURE:
40 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
41 oligonucleotide
43 <400> SEQUENCE: 2
44 tagatggggc 10
47 <210> SEQ ID NO: 3
48 <211> LENGTH: 21
49 <212> TYPE: DNA
50 <213> ORGANISM: Artificial Sequence
52 <220> FEATURE:
53 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
55 <400> SEQUENCE: 3
56 atgagcaatc gcccatcta c 21
59 <210> SEQ ID NO: 4
60 <211> LENGTH: 18
61 <212> TYPE: DNA
62 <213> ORGANISM: Artificial Sequence
64 <220> FEATURE:
65 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer

ENTERED

RAW SEQUENCE LISTING

DATE: 05/09/2003

PATENT APPLICATION: US/09/825,769A

TIME: 12:39:25

Input Set : A:\38777054.app

Output Set: N:\CRF4\05092003\I825769A.raw

```

67 <400> SEQUENCE: 4
68 cactatttgg tcggtcgg                                     18
71 <210> SEQ ID NO: 5
72 <211> LENGTH: 19
73 <212> TYPE: PRT
74 <213> ORGANISM: Artificial Sequence
76 <220> FEATURE:
77 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
78     peptide
80 <400> SEQUENCE: 5
81 Gly Gly Gly Asp Gly Ser Phe Ser Gly Phe Gly Asp Gly Ser Phe Ser
82   1           5           10           15
84 Gly Phe Gly
87 <210> SEQ ID NO: 6
88 <211> LENGTH: 403
89 <212> TYPE: PRT
90 <213> ORGANISM: Bordetella pertussis
92 <400> SEQUENCE: 6
93 Met Ser Asn Arg Pro Ile Tyr Leu Asp Tyr Ser Ala Thr Thr Pro Val
94   1           5           10           15
96 Asp Pro Ser Val Val Glu Lys Met Ile Pro Trp Leu Tyr Glu Ser Phe
97   20           25           30
99 Gly Asn Pro Ala Ser Arg Ser His Arg Phe Gly Trp Glu Ala Glu Asp
100  35           40           45
102 Ala Val Glu Lys Ala Arg Glu Glu Val Ala Lys Leu Val Asn Ala Asp
103  50           55           60
105 Pro Arg Glu Ile Val Trp Thr Ser Gly Ala Thr Glu Ser Asp Asn Leu
106  65           70           75           80
108 Ala Ile Lys Gly Ala Ala Asn Phe Tyr Ala Glu Arg Gly Lys His Ile
109  85           90           95
111 Ile Thr Val Lys Thr Glu His Lys Ala Val Leu Asp Thr Cys Arg Glu
112 100           105          110
114 Leu Glu Arg Gln Gly Phe Glu Val Thr Tyr Leu Asp Val Gln Asp Asp
115 115           120          125
117 Gly Leu Leu Ser Leu Asp Ala Phe Lys Ala Ala Leu Arg Pro Asp Thr
118 130           135          140
120 Ile Leu Val Ser Val Met Met Val Asn Asn Glu Ile Gly Val Ile Gln
121 145           150          155          160
123 Asp Ile Ala Ala Leu Gly Glu Ile Cys Arg Glu Lys Gly Ile Ile Phe
124 165           170          175
126 His Val Asp Ala Ala Gln Ala Thr Gly Lys Val Glu Ile Asp Leu Gln
127 180           185          190
129 Lys Leu Lys Val Asp Leu Met Ser Phe Ser Ala His Lys Thr Tyr Gly
130 195           200          205
132 Pro Lys Gly Ile Gly Ala Leu Tyr Val Arg Arg Lys Pro Arg Val Arg
133 210           215          220
135 Ile Glu Ala Gln Met His Gly Gly Gly His Glu Arg Gly Phe Arg Ser
136 225           230          235          240
138 Gly Thr Leu Ala Thr His Gln Ile Val Gly Met Gly Glu Ala Phe Arg

```

RAW SEQUENCE LISTING

DATE: 05/09/2003

PATENT APPLICATION: US/09/825,769A

TIME: 12:39:25

Input Set : A:\38777054.app

Output Set: N:\CRF4\05092003\I825769A.raw

```

139          245          250          255
141 Leu Ala Arg Glu Glu Met Gly Thr Glu Asn Glu Arg Val Arg Met Leu
142          260          265          270
144 Arg Asp Arg Leu Leu Ala Gly Leu Thr Gln Ile Glu Glu Val Tyr Val
145          275          280          285
147 Asn Gly Ser His Glu His Arg Val Pro His Asn Leu Asn Ile Ser Phe
148          290          295          300
150 Asn Tyr Val Glu Gly Glu Ser Leu Ile Met Ala Ile Lys Glu Leu Ala
151 305          310          315          320
153 Val Ser Ser Gly Ser Ala Cys Thr Ser Ala Ser Leu Glu Pro Ser Tyr
154          325          330          335
156 Val Leu Arg Ala Leu Gly Arg Asn Asp Glu Leu Ala His Ser Ser Ile
157          340          345          350
159 Arg Phe Thr Leu Gly Arg Phe Thr Thr Glu Gln Glu Ile Asp Phe Thr
160          355          360          365
162 Ile Glu Leu Ile Lys Ser Arg Val Gly Lys Leu Arg Asp Met Ser Pro
163          370          375          380
165 Leu Trp Glu Met Ala Gln Glu Gly Ile Asp Leu Asn Ser Val Gln Trp
166 385          390          395          400
168 Ala Ala His
171 <210> SEQ ID NO: 7
172 <211> LENGTH: 403
173 <212> TYPE: PRT
174 <213> ORGANISM: Bordetella pertussis
176 <400> SEQUENCE: 7
177 Met Ser Asn Arg Pro Ile Tyr Leu Asp Tyr Ser Ala Thr Thr Pro Val
178 1          5          10          15
180 Asp Pro Ser Val Val Glu Lys Met Ile Pro Trp Leu Tyr Glu Ser Phe
181          20          25          30
183 Gly Asn Pro Ala Ser Arg Ser His Arg Phe Gly Trp Glu Ala Glu Asp
184          35          40          45
186 Ala Val Glu Lys Ala Arg Glu Glu Val Ala Lys Leu Val Asn Ala Asp
187          50          55          60
189 Pro Arg Glu Ile Val Trp Thr Ser Gly Ala Thr Glu Ser Asp Asn Leu
190 65          70          75          80
192 Ala Ile Lys Gly Ala Ala Asn Phe Tyr Ala Glu Arg Gly Lys His Ile
193          85          90          95
195 Ile Thr Val Lys Thr Glu His Lys Ala Val Leu Asp Thr Cys Arg Glu
196          100          105          110
198 Leu Glu Arg Gln Gly Phe Glu Val Thr Tyr Leu Asp Val Gln Asp Asp
199          115          120          125
201 Gly Leu Leu Ser Leu Asp Ala Phe Lys Ala Ala Leu Arg Pro Asp Thr
202          130          135          140
204 Ile Leu Val Ser Val Met Met Val Asn Asn Glu Ile Gly Val Ile Gln
205 145          150          155          160
207 Asp Ile Ala Ala Leu Gly Glu Ile Cys Arg Glu Lys Gly Ile Ile Phe
208          165          170          175
210 His Val Asp Ala Ala Gln Ala Thr Gly Lys Val Glu Ile Asp Leu Gln
211          180          185          190

```

RAW SEQUENCE LISTING

DATE: 05/09/2003

PATENT APPLICATION: US/09/825,769A

TIME: 12:39:25

Input Set : A:\38777054.app

Output Set: N:\CRF4\05092003\I825769A.raw

```

213 Lys Leu Lys Val Asp Leu Met Ser Phe Ser Ala His Lys Thr Tyr Gly
214          195          200          205
216 Pro Lys Gly Ile Gly Ala Leu Tyr Val Arg Arg Lys Pro Arg Val Arg
217      210          215          220
219 Ile Glu Ala Gln Met His Gly Gly Gly His Glu Arg Gly Phe Arg Ser
220 225          230          235          240
222 Gly Thr Leu Ala Thr His Gln Ile Val Gly Met Gly Glu Ala Phe Arg
223          245          250          255
225 Leu Ala Arg Glu Glu Met Gly Thr Glu Asn Glu Arg Val Arg Met Leu
226          260          265          270
228 Arg Asp Arg Leu Leu Ala Gly Leu Thr Gln Ile Glu Glu Val Tyr Val
229      275          280          285
231 Asn Gly Ser His Glu His Arg Val Pro His Asn Leu Asn Ile Ser Phe
232      290          295          300
234 Asn Tyr Val Glu Gly Glu Ser Leu Ile Met Ala Ile Lys Glu Leu Ala
235 305          310          315          320
237 Val Ser Ser Gly Ser Ala Cys Thr Ser Ala Ser Leu Glu Pro Ser Tyr
238          325          330          335
240 Val Leu Arg Ala Leu Gly Arg Asn Asp Glu Leu Ala His Ser Ser Ile
241          340          345          350
243 Arg Phe Thr Leu Gly Arg Phe Thr Thr Glu Gln Glu Ile Asp Phe Thr
244          355          360          365
246 Ile Glu Leu Ile Lys Ser Arg Val Gly Lys Leu Arg Asp Met Ser Pro
247      370          375          380
249 Leu Trp Glu Met Ala Gln Glu Gly Ile Asp Leu Asn Ser Val Gln Trp
250 385          390          395          400
252 Ala Ala His
255 <210> SEQ ID NO: 8
256 <211> LENGTH: 1212
257 <212> TYPE: DNA
258 <213> ORGANISM: Bordetella pertussis
260 <400> SEQUENCE: 8
261 atgagcaatc gcccatcta cctggactac tcggctacca cgccggtcga cccgagcgtg 60
262 gtcgagaaaa tgattccctg gttgtacgag agtttcggca atccggcctc gcgcagccac 120
263 gcctttggct gggaagccga ggacgcggtc gagaaggccc gcgaggaagt tgccaagctg 180
264 gtcaacgccg atccgcgcga gatcgtctgg acttccggcg ctaccgagtc ggacaacctg 240
265 gccatcaagg gcgcggcgaa tttctacgcc gagcgcggca agcacatcat taccgtaag 300
266 accgaacaca aggcggtgct ggatacctgt cgggagctcg aacgccaggg ctttgaagtg 360
267 acctacctgg atgtccagga cgatggtctg ctcagcctcg atgcgttcaa ggotgcgctg 420
268 cgcccgata ccatacctgg gtcggtgatg atggtcaaca acgagatcgg cgtcatccag 480
269 gacatcgccg cgctgggcga gatctgccgc gagaagggca tcattctcca cgtggacgcg 540
270 gccagggcca cggcaagggt cgagatcgac ctgcagaagc tgaagggtga cctgatgtcg 600
271 ttctcggcgc acaagacgta cggccccaag ggcacgcgcg cgctgtatgt gcggcgcaag 660
272 ccgcgcgtgc gcacgcaggg gcagatgcac ggcggcgccc acgaacgggg cttccggtcg 720
273 ggcacgctgg ccacgcacca gatcgtcggc atgggcgagg cgttccgcct ggcgcgcgag 780
274 gaaatgggca ccgagaacga gcgcgtgcgc atgctgcgcg accgcctgct ggccggcctg 840
275 acgcagatcg aggaagtgt tgtgaacggc agcatggagc accgcgtgcc gcacaacctg 900
276 aacatcagct tcaactatgt cgagggcgag tctctgatca tggcgatcaa ggagctggcc 960
277 gtttccagcg gttcggcctg cagctcggcc agcctggagc cgtcctatgt gctgcgcgcg 1020

```

RAW SEQUENCE LISTING

DATE: 05/09/2003

PATENT APPLICATION: US/09/825,769A

TIME: 12:39:25

Input Set : A:\38777054.app

Output Set: N:\CRF4\05092003\I825769A.raw

278 ctgggcccga acgacgagct ggcgcacagc tccatccgct ttaccctggg ccgcttcacg 1080
 279 accgaacagg aaatcgactt cagatcgaa ctgatcaaga gtcgtgtcgg caagctgcgc 1140
 280 gatatgtcgc cgttgtggga aatggcccag gaaggcattg atctgaattc cgtgcagtgg 1200
 281 gccgcgcact ga 1212

284 <210> SEQ ID NO: 9

285 <211> LENGTH: 565

286 <212> TYPE: DNA

287 <213> ORGANISM: Bordetella pertussis

289 <400> SEQUENCE: 9

290 atgagcaatc gcccacatcta cctggactac tcggctacca cgcggtoga cccgagcgtg 60
 291 gtcgagaaaa tgattccctg gttgtacgag agtttcggca atccggcctc gcgcagccac 120
 292 gcctttggct gggaagccga ggaacgcgtc gagaaggccc gcgaggaagt tgccaagctg 180
 293 gtcaacgccg atccgcgcga gatcgtctgg acttcggcg ctaccgagtc ggacaacctg 240
 294 gccatcaagg gcgcggcgaa ttctacgcc gagcgcggca agcacatcat taccgtcaag 300
 295 accgaacaca aggcggtgct ggatacctgt cgggagctcg aacgccaggg ctttgaagtg 360
 296 acctacctgg atgtccagga cgtggtctg ctacgcctcg atgcgttcaa ggctgcgctg 420
 297 cgcccggata ccacctcgtt gtcggtgatg atggtcaaca acgagatcgg cgtcatccag 480
 298 gacatcgccg cgctgggcga gatctgcgc gagaagggca catcttcac gtggacgcgg 540
 299 ccaagccaac ggcaaggctc agatc 565

302 <210> SEQ ID NO: 10

303 <211> LENGTH: 560

304 <212> TYPE: DNA

305 <213> ORGANISM: Bordetella pertussis

307 <220> FEATURE:

308 <221> NAME/KEY: modified_base

309 <222> LOCATION: (18)

310 <223> OTHER INFORMATION: a, t, c, g, other or unknown

312 <220> FEATURE:

313 <221> NAME/KEY: modified_base

314 <222> LOCATION: (20)

315 <223> OTHER INFORMATION: a, t, c, g, other or unknown

317 <220> FEATURE:

318 <221> NAME/KEY: modified_base

319 <222> LOCATION: (75)

320 <223> OTHER INFORMATION: a, t, c, g, other or unknown

322 <220> FEATURE:

323 <221> NAME/KEY: modified_base

324 <222> LOCATION: (338)

325 <223> OTHER INFORMATION: a, t, c, g, other or unknown

327 <400> SEQUENCE: 10

W--> 328 ggcgcaagcc gcgcgtgngn atcgaggcgc agatgcacgg cggcggccac gaacggggct 60
 329 tccggtcggg cagntggcc acgcaccaga tcgtcggcat gggcgaggcg ttccgcctgg 120
 330 cgcgcgagga aatgggcacc gagaacgagc gcgtgcgcac gctgcgcgac cgcctgctgg 180
 331 ccggcctgac gcagatcgag gaagtgtatg tgaacggcag catggagcac cgcgtgccgc 240
 332 acaacctgaa catcagcttc aactatgtcg agggcgagtc tctgatcatg gcgatcaagg 300
 333 agctggccgt ttccagcggc tcggcctgca cgtcggcnag cctggagccg tcctatgtgc 360
 334 tgccgcgcgt ggccgcgaac gacgagctgg cgcacagctc catccgcttt accctgggcc 420
 335 gcttcacgac cgaacaggaa atcgacttca cgatcgaact gatcaagagt cgtgtcggca 480
 336 agctgcgcga tatgtcgcgc ttgtgggaaa tggcccagga aggcattgat ctgaattccg 540

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/825,769A

DATE: 05/09/2003
TIME: 12:39:26

Input Set : A:\38777054.app
Output Set: N:\CRF4\05092003\I825769A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:10; N Pos. 18, 20, 75, 338
Seq#:12; N Pos. 247

VERIFICATION SUMMARY

DATE: 05/09/2003

PATENT APPLICATION: US/09/825,769A

TIME: 12:39:26

Input Set : A:\38777054.app

Output Set: N:\CRF4\05092003\I825769A.raw

L:328 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0

M:341 Repeated in SeqNo=10

L:371 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:240